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CAFF

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INTRODUCTION

Arctic protected areas, like protected areas throughout the world, hold value for society. Just as there is a wide diversity in protected areas, there is likewise a wide diversity in the values they protect and represent. Values and benefits associated with protected areas include:

VALUES OF PROTECTED AREAS*

- Natural physical values encompass the function a protected area serves in sequestering carbon, protecting a watershed, or for pollution filtration.
- Natural ecological values encompass functions a protected area provides as species habitat including for sustenance, breeding, migration, and natural evolution.
- Economic values include direct or indirect monetary, commercial and employment benefits to a community/country derived from tourism, cottage industries, agricultural grazing and other activities.
- Cultural and heritage values can include the importance of protected areas in representing the characteristics that formed a society's distinct character and the historical importance of a site in shaping a society or people; spiritual values attributed to a site are also included.
- Recreation values include the worth of a site for consumptive or non-consumptive activities.

* Arctic Protected Areas: A Question of Values, unpublished paper, J. Pagnan, 2002

- Subsistence use values include the worth of a site for human habitation or providing human nourishment prior to western economic development.
- Societal values include the importance of a protected area to a society at large often reflected in the funding or political priority attached to the site.
- Landscape values can include the visual characteristics of an area and their relative importance to local communities, nations or internationally.
- Educational values can include the use of a site to train or teach people and make them aware of their physical and natural surroundings and its biodiversity.
- Scientific and research values include the importance of a site in contributing to an understanding of the natural environment and the consequences of natural vs. human-caused, or anthropogenic, changes.

THE ARCTIC

The Arctic is a unique ecosystem encompassing nearly 30 million km^2. It includes an ocean, multiple seas and a surrounding landmass of over 14 million square kilometres. The Arctic crosses eight countries each with its own protected area regime and protected area agencies. The Arctic contains much of the world's remaining pristine and undisturbed landscapes, most of the northern hemisphere's supply of freshwater in the form of glacial ice and the great rivers that flow into Arctic waters, spectacular mountains, wetlands, the vast Arctic tundra, and great stretches of forest. Vegetation ranges from the dense covering of alpine meadows to the occasional solitary plant surviving in the high Arctic desert, to large kelp forests along the coasts of the Arctic seas. The Arctic hosts a wide array of resident insect, bird, mammal and fish life. During the short, intense spring and summer seasons, the Arctic hosts millions of migratory animals from around the globe.

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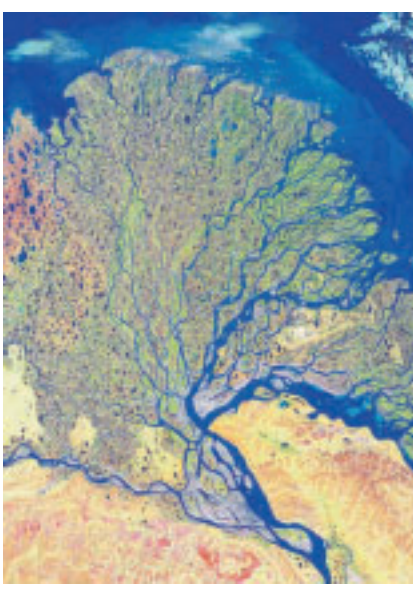
The Arctic is home to many ancient societies including the Inuit of North America, the Saami of Scandinavia and at least 40 distinct peoples of Northern Russia and the Aleutian Islands. Each has its own distinct cultural, traditions and lifestyle values. Rich archaeological sites and important cultural landscapes are testimony to the long and enduring relationship of Arctic peoples to the natural environment.

Arctic protected areas provide an array of global, national, local and community benefits for nature and for people. Many of these values are difficult to quantify and as a result, are not always accounted for in conventional resource evaluations and land use decisions. In reality, however, Arctic protected areas not only conserve a wide range of non-material values but also provide significant long-term economic benefits in terms of revenues and employment to the countries and to indigenous and local communities.

WATER IN ABUNDANCE

In recent decades, parts of the world have experienced droughts and shortages of freshwater have become a major global issue. In comparison to many parts of the globe, the Arctic is blessed with an abundance of freshwater. Eight of the world's largest rivers are in the Arctic and where they drain into the seas, they form some of the world's most important deltas, a number of which have been protected. Russia has established protected areas at the deltas of the Ob, Yenisey, Lena, and Kolyma Rivers; the USA, Norway and Canada have established protected areas at the deltas of the Yukon, Altaelva and Nelson Rivers, respectively.



The largest permanent freshwater deposit in the Arctic is glacial ice. Areas with significant glacial ice coverage include the large Arctic islands of Russia (i.e., Novaya Zemlya and Severnaya Zemlya), southwestern Alaska, southeast Iceland and the Greenland ice cap, which at 1.7 million km^2, holds 10% of the world's freshwater supply. Arctic countries have given protection to glaciers and their important water supplies and many protected areas have been established in their vicinity. Examples are Glacier Bay National Park (USA), Greenland National Park, Skaftafell (Iceland), North West Spitsbergen National Park (Norway), and the Severnaya Zemlya Sanctuary (Russia).

PROTECTING GLOBAL BIODIVERSITY

Arctic countries are signatories to the 1992 Convention on Biological Diversity (CBD) and have committed to protect wildlife and its habitat. The CBD calls for global and regional systems of protected areas and the Circumpolar Protected Area Network is being implemented partially in response to this commitment.

Wildlife species in the Arctic are either permanent residents or migratory. Among the more important permanent residents are Polar Bears, Musk Ox, Caribou and Reindeer, Arctic Wolf, Wolverines, Snowy Owls, Walrus, many varieties of seal, and cetaceans such as the Killer Whale, Bowhead, Narwhal and Beluga Whales.

A critical value of the Arctic is as the summer breeding ground for millions of migratory wildlife. Over 250 species of birds including geese, shorebirds, seabirds, and many others flock to the Arctic each spring to enjoy the rich breeding grounds and abundant nutrient supplies. Arctic waters also receive several species of marine mammal such as the humpback and grey whales and various seals.

For over a century, Arctic countries have set aside reserves to protect both resident and migratory wildlife. Examples are national wildlife areas and migratory bird sanctuaries in Canada; national wildlife refuges and state game sanctuaries in the USA (Alaska); nature reserves in Greenland; strict nature reserves and wilderness areas in Finland, and in Russia, national zakazniks, (wildlife sanctuaries). Northern national parks have a mandate for wildlife protection and Arctic countries have also adopted stringent hunting regulations to protect species.

Arctic protected areas also contribute to global efforts to stem species extinctions. All eight countries are signatories to the Convention on International Trade in Endangered Species and have set aside areas to protect endangered or threatened species. Norway strictly protects Polar Bears on Svalbard. The nesting ground of the Whooping Crane is protected as part of Wood Buffalo National Park of Canada. Sweden has set up a protected area for the Lesser White-Fronted Goose and Russia has established protected areas on the Taimyr Peninsula and along the Laptev coast to protect the Walrus. The Arctic countries also set aside areas to protect migratory species from harm during their stay in the Arctic. For example, Russia protects the Grey Whale and the Snow Goose at the Wrangel Island Zapovednik and surrounding waters.

PRESERVING PLANT LIFE AND THE GENE POOL

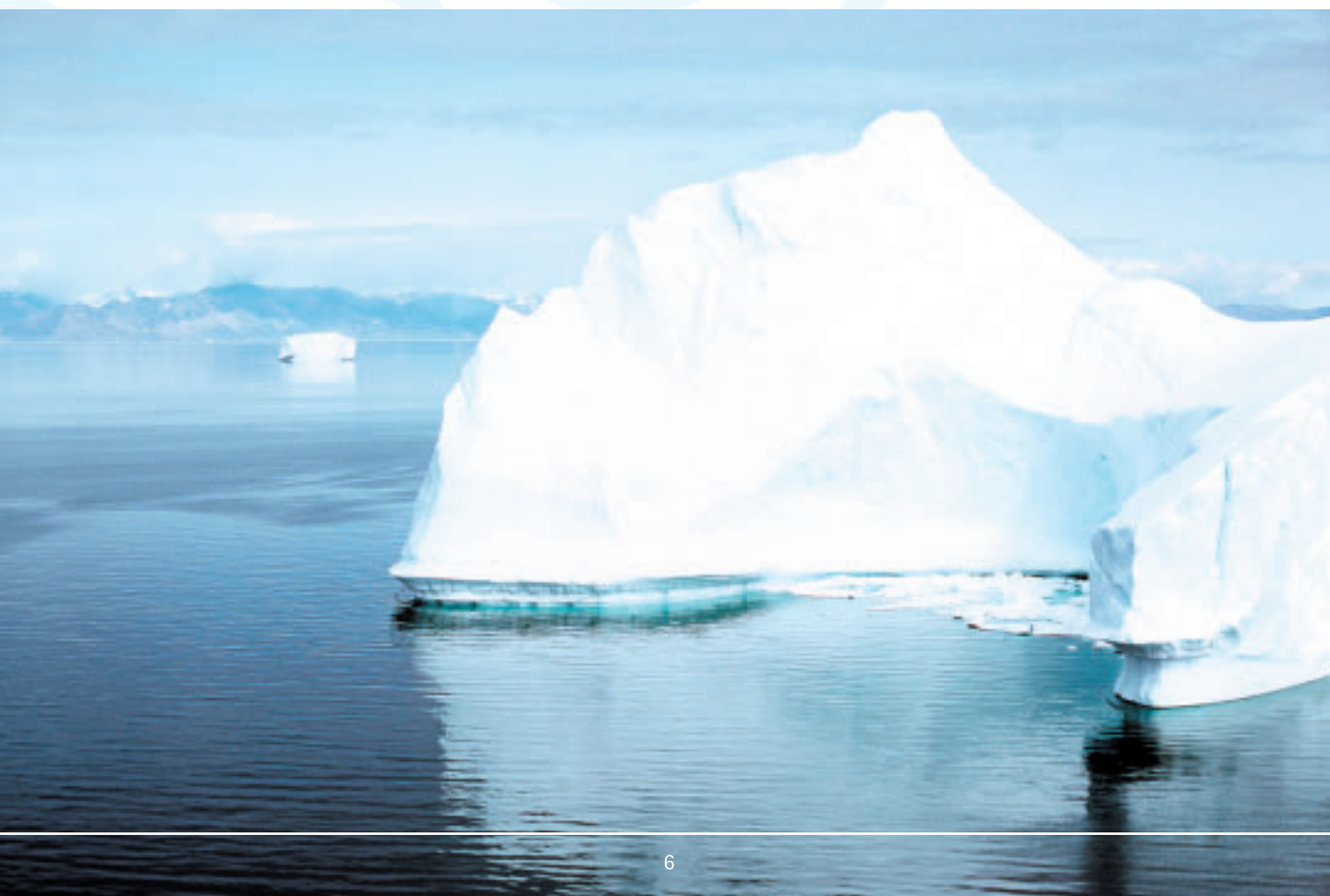
Arctic vegetation has ecological, subsistence and scientific values to the people of the Arctic and to the global community. One of the myths about the Arctic is that it is practically barren of vegetation, however at least 6,000 species of flowering plants, lichens and mosses occur in the tundra zone alone. During the spring and summer the Arctic tundra springs to life and becomes a carpet of flowering plants, lichens and grasses. Of the flowering plants, many are endemic and some ninety-six species are classified as rare. Countries have been slow to protect much of this rare plant life in its own right. For example, 61% of rare endemic taxa occur outside protected areas. Of the more common plant types, 47% lack formal protection, 30% are fully protected and the remaining 23% are partially protected.

In addition to supporting migratory wildlife during their short breeding season, Arctic vegetation supports resident herbivore species of the Arctic such as the Caribou and Musk Ox. However, Arctic plant-life grows slowly and can support only limited grazing. Therefore, the ranges of these species are necessarily large. Countries have taken steps to protect important tracts of the tundra critical for these herbivores. Examples are the Arctic National Wildlife Refuge in Alaska, North-west Spitsbergen National Park that protects the Svalbard reindeer, and the Great Arctic Nature Reserve of Russia, which helps protect the Tundra reindeer. Greenland's National Park protects the grazing grounds of world's largest herd of Musk Oxen.

A WEALTH OF WETLANDS

Underlying much of the Arctic is a layer of frozen soil termed "permafrost" the upper portion of which, along with the snow cover, melts in the spring to form a rich blanket of marshes and wetlands, providing ideal breeding habitat for many species.

Migratory water birds depend on wetlands and all eight Arctic countries are signatories to the Ramsar Convention on Wetlands of International Importance. Together, countries have designated more than 45 Ramsar sites in the Arctic, with more proposed. Some 136 species of migratory birds breeding in the Arctic depend on wetlands as well as on wetlands in the countries where they over-winter. Of the nearly 1200 Ramsar sites designated globally, over 800 are used as important wintering sites for Arctic birds.



FORESTS IN THE ARCTIC – A MULTITUDE OF VALUES

Arctic forests have important physical and biological values. They stabilize and protect fragile northern soils and nutrients, conserve water resources, act as carbon storage and filter pollutants through their soils. The shifts in Arctic forest areas and in the occurrence of wildfires are also important indicators of climate change. Biologically, the forest-tundra transition zone contains 15 known tree species and plays a vital role as habitat for many Arctic wildlife species. Northern forested areas have been critical for indigenous societies who have used them extensively as a source for subsistence.

One of the least protected systems in the Arctic is its forested zones although there are some notable exceptions. Greenland has fully protected its Qingua Valley, its only forested area, under special legislation since 1962. Sweden has two acts in place under which it has established over 600 crown forest reserves throughout Sweden, and Urho Kekkonen National Park protects important forest values in the north-east portion of Finland. Ivvavik and Vuntut national parks in Canada, and a number of zapovedniks also protect important timberline forest resources.

SECURING MARINE VALUES

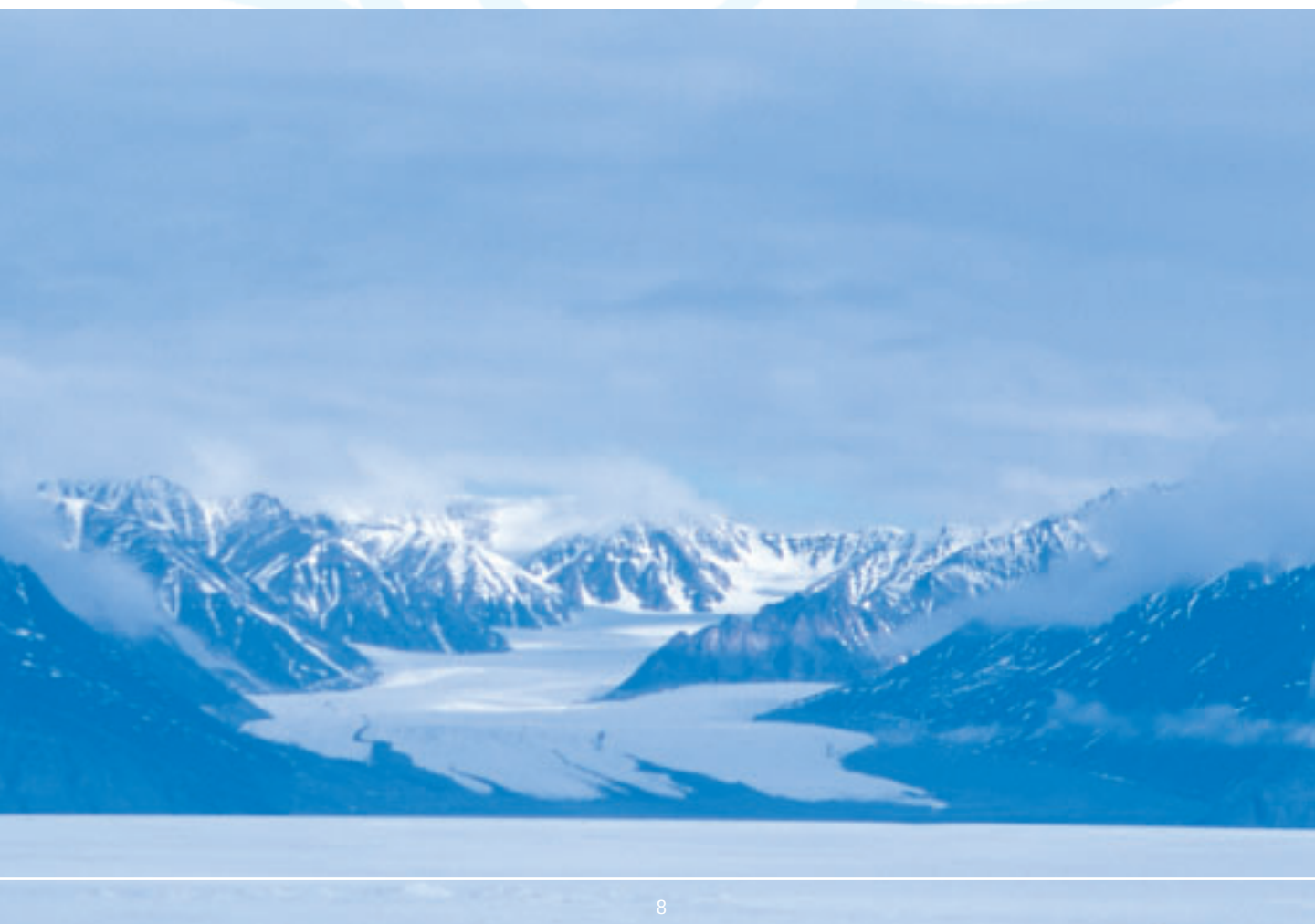
The Arctic's marine environment is crucial for global climate and for regulating the world's ocean currents. It provides year-round habitat for a multitude of marine mammals and seabirds and supports hundreds of thousands of migratory whales, seals and birds. Its seas contain some of the richest fisheries in the world. Marine wildlife tends to congregate in a few critical areas throughout the Arctic. One favoured area, and a feature unique to the icy marine environment are "polynyas" – areas of open water that recur in the same location. Examples include the Northwater Polynya between Greenland and Canada, and the Great Siberian Polynya in the Laptev Sea.

Despite the values of the Arctic marine environment to wildlife and to people, countries have been slow to designate marine conservation areas. Some exceptions are Greenland's Melville Bay and the coastal zone of the Greenland National Park, the Alaska Maritime and the Izembek National Wildlife Refuges in the USA (Alaska), Canada's Cape Dorset, and Prince Leopold Island migratory bird sanctuaries and Norway's Bliksbaer and Karl Soyvaer nature reserves.

Despite these and other efforts, protection of the marine environment has remained low, at less than 2%. However, that trend may be changing. In the 1990's, both Iceland and Russia formally protected large marine areas. Iceland established the Breidafjordur Marine Conservation Area in 1995 and in 1993, Russia declared the 42,000 km^2 Great Arctic Reserve that includes offshore islands and stretches of the Kara Sea. In 1999, Russia also extended the marine protection of the Wrangel Island Zapovednik out to the 12-mile limit.

AESTHETIC VALUES AND SCENIC BEAUTY

The Arctic is blessed with some of the most spectacular natural scenery in the world ranging from the magnificent fjords of Greenland to the majesty of the mountains of Alaska. The Arctic countries have formally protected many of these sites and strictly regulate activities that could disrupt their high aesthetic values. Besides having high visual values, these sites represent truly pristine, unfragmented wilderness areas that are a rapidly dwindling and valuable commodity. Another benefit of these protected areas is their remoteness that has thus far protected them from some of the impacts of industrialisation – excessive noise, light and air pollution.



GEOLOGICAL WONDERS IN THE ARCTIC

The Arctic has a fascinating array of geological features of local, national and global value. One of its most striking features are its mountains which include several important ranges such as the coastal chain in Alaska, the Verkhoyansk, and Koryak Mountains of Yakutia and Russia's Far East, the northern portion of the Ural Mountain chain, and the Scandes Range forming the spine of Scandinavia. These mountains have a multitude of values. They influence the weather patterns of the north, store water as ice and snow, contain important alpine habitat and species and for people of the Arctic, often have special cultural and spiritual meaning. Several important mountains are fully protected within parks or nature reserves. For example, Mount McKinley in Alaska's Denali National Park and Mount Logan in the Yukon, the highest peaks in the USA and Canada respectively, are within national parks. The Scandes Range forms the heart of the Norwegian and Swedish skiing and outdoor recreation industry and several important areas are protected as nature reserves.

Geologically, the Arctic is a region of contrasts. It contains both the earth's oldest rock, Greenland's Precambrian geology, included in its protected areas, and the earth's youngest rock, Iceland's extensive lava fields and Surtsey Island, a recently formed island declared a nature reserve in 1965.

The Arctic contains an important fossil and paleontological record including a fossilized forest recently discovered in Canada's Arctic and the extensive holdings in Russia's north including Wrangel Island, home of the last mammoths and now protected as a zapovednik and World Heritage Site.

The Arctic is a repository for a wide array of mineral deposits, many of which have been exploited for over a century. Many of the mines are now abandoned and a number are now protected for their historical and cultural heritage values. Dawson City in Canada and Roros World Heritage Site in Norway are two examples.

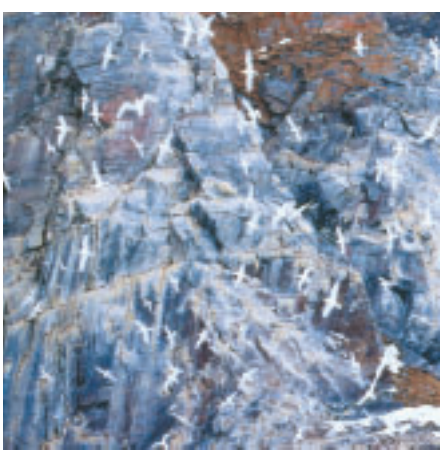
Volcanic and related geological activity occur in two main regions in the Arctic. The first is Iceland, which sits atop a volcanic submarine ridge and is replete with geysers and active volcanoes that reflect its volcanic origins. Iceland has established several protected areas to conserve its unique geological heritage and values. The second centre of volcanic activity is the Kamchatka Peninsula of Russia's Far East. There are over three hundred volcanoes stretching across the peninsula with about 30 currently active. The Kamchatka Volcanoes are legally protected as part of a series of federal and regional protected areas.

ADDING TO GLOBAL KNOWLEDGE

Arctic species are superbly adapted to the naturally inhospitable climate and long periods of nutrient deprivation. How they have accomplished this may help us understand whether or how species and ecosystems in other regions can adapt to the pressures of global warming and extreme weather events. This is one of the many areas of research being conducted in Arctic protected areas that may be useful in other regions of the world. The Arctic itself is a bellwether for both global climate change and the long-range impact of pollution, and protected areas make ideal settings for ecological research and monitoring. To capitalize on these features, the Arctic countries are establishing an ecological monitoring network using protected areas as core sites. Examples include Russian Zapovedniks that are heavily oriented toward scientific research and the Greenland National Park that regularly accommodates teams of scientists.

LANDSCAPE – SEASCAPE VALUES

A protected "landscape" or "seascape" refers to an "area of land with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural values and often with high biological diversity." The Arctic contains several areas with nationally significant landscapes in which human interaction figures prominently. These sites recognize and protect the ongoing relationship between people and the natural environmental values that have sustained them. Some of these special landscape values are conserved in Russia's protected areas such as Taimyr, and in Ivvavik and Vuntut national parks of Canada. Norway has protected several traditional reindeer herding areas used by the Saami and Sweden has protected sites that have traditional agricultural landscape values including natural hay and grazing areas.



CONSERVING INTERNATIONALLY SIGNIFICANT HERITAGE VALUES

Arctic protected areas play an increasingly valuable role in conserving heritage values of global significance. The World Heritage Convention established the World Heritage List as a means of recognizing that some places have such outstanding universal value that they constitute the common heritage of mankind. World Heritage natural sites in the Arctic now include three national parks in Canada, two in the USA (Alaska), two in Sweden, three in Russia, one site in Greenland and Pingvellir National Park in Iceland.

In addition to providing an additional layer of protection for the values for which a World Heritage site is nominated, conferring World Heritage status on a site enhances its value for tourism and may enable funding assistance for management.

PROTECTING TRADITIONAL CULTURES AND VALUES

The Arctic has been inhabited for millennia and its people have historically depended on the living resources of the Arctic for subsistence. Since wildlife in the Arctic tends to congregate in discrete centres of abundance and follow regular migration patterns, people generally congregated in these areas.

When governments established protected areas in the Arctic, they often selected these same sites because of the high biodiversity values and classified them as strict nature reserves intended to curtail most human activity. However, Arctic countries have increasingly recognized the important cultural and subsistence values of these sites to traditional peoples of the Arctic and traditional sustainable uses are now carried out within these areas.

Indigenous peoples also recognize the need to protect certain areas. Northern Aboriginal groups in Canada have negotiated land claim agreements that include provisions for co-operatively managed protected areas. These agreements enable them to share in protecting the values of the sites and reap their benefits. In Scandinavia, reindeer herding and coastal fisheries are long-standing traditional activities of the Saami people. Many important reindeer summer pastures and winter grazing sites are in protected areas and the values of these areas for traditional use is enshrined in legislation.

Recently there has been a growing interest in protecting the Arctic's unique indigenous cultural heritage and traditional values. One example is a project by the Russian Association of Indigenous Peoples of the North to identify and protect sites with important cultural and spiritual values. CAFF Technical Report No 11: *The Conservation Value of Sacred Sites of Indigenous Peoples of the Arctic: A Case Study in Northern Russia - Report on the State of Sacred Sites and Sanctuaries* describes this project.

BENEFITS FOR PEOPLE

Protected areas have long been a means for people to protect their natural and cultural heritage and their traditional ways of life against undesirable incursions. To maximize the benefits of protected areas to people, it is important to have governance systems in place that meaningfully engage local communities to give them a voice in the protection of values important to them. One method used in the Arctic is Canada's system of cooperative management. Over the last three decades numerous cooperative management agreements have been negotiated that enable government and indigenous groups to work together to preserve natural areas and cultural resources that are vital to sustaining traditional ways of life and which also contribute to national conservation goals. The most recent example is the 2003 Inuit Impact and Benefit Agreement to establish Ukkusiksalik National Park in Canada's central Arctic.

FEEDING THE ECONOMY AND BENEFITING LOCAL COMMUNITIES

Around the world, protected areas help generate money and jobs. They attract tourists as well as scientists, and the business sector. They provide employment for local communities. Protected areas do not always offer the same sort of short-term monetary benefits as, for example, the oil and gas industry, however, the benefits offered by protected areas are, instead, long-term, more sustainable and may be better suited to the aspirations of many northern residents.

Many governments and local communities are capitalizing on the multiple values offered by protected areas. One example is Auyuittuq National Park in Canada. It contributes substantially to the local economy with visitor expenditures of around $175,000 CAD/yr, mostly in two adjacent communities. The park also creates community spin off benefits by supporting an Inuit ecotourism and crafts industry. The co-operative park management structure provides additional benefits, enabling local citizens to play a valuable role in decision making and to work as park staff.

QUANTIFYING THE VALUES

When deciding to establish a protected area or to accept a wider array of resource use, it is now customary to examine the financial implications and to quantify the values. This is not always easy because many values being considered are intangible. Nevertheless, efforts are being made by Arctic countries to quantify values since this can be a powerful argument for decision-makers and communities alike.

A recent study quantified values Canadians attach to four proposed national parks in arctic Canada. The results found that those surveyed as part of the study were willing to pay 244.35CAD per household to establish the new Arctic parks. Generalized across the Canadian population, this yields a value of 2.8 billion CAD. This quantitative value can be used in cost-benefit and financial resource allocation decision-making and demonstrates the high existence values that Canadians place on new arctic national parks.

AN OPTIMISTIC FUTURE IN AN UNCERTAIN WORLD

Despite growing pressures, there is much reason for optimism for the future of protection in the Arctic. In most of the Arctic, protected area systems and legislation are evolving to better accommodate the legitimate concerns and aspirations of local people, indigenous communities and the business sector. There are an increasing number of multi-stakeholder forums in place. Management responsibilities and decision-making are being shared more frequently with local governments, with indigenous peoples in cooperative management settings, and with the private sector. There is ample evidence to show that protected areas have worked effectively to conserve nature and our natural resources and that where critical habitat is protected and suitable regulations and voluntary mechanisms are in place, wildlife responds well. There is a better appreciation among all segments of society of the need to protect not only natural values but the cultural dimension as well. There is a growing recognition and understanding of the very wide array of values that protected areas conserve and the benefits that Arctic protected areas provide locally, nationally and internationally.

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This publication is a summary of "Protected Areas of the Arctic: Conserving a Full Range of Values", CAFF, 2002

Primary Authors: Jeanne Pagnan, Gregg Legare

Contributors: Heikki Eeronheimo, Ellen Fritts, Jan-Petter Huberth Hansen, Mette-Astrid Jessen, Jim Johnston, Bas Oosenbrug, Aevar Petersen, Vladimir Pischelev, Gunn-Britt Retter, Tamara Semenova, Sune Sohlberg, Page Spencer

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Available from: CAFF International Secretariat,
Borgir 5th Floor
Nordurslod
600 Akureyri, Iceland

Tel: +354 462 3350 Fax: +354 462 3390,
E-mail: CAFF@CAFF.IS WWW.CAFF.IS